AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A high-speed, broadband, wireline modem including an adaptive equalizer having both a training mode and a decision-directed, non-training mode, the adaptive equalizer comprising:

at least one of: a forward path coupled to receive the signal samples, the forward path including a forward filter and a decision element, and a feedback path coupled between an output of the decision element and an input of the decision element, the feedback path including a feedback filter; and

means for adapting the one of said forward filter and said feedback filter based on a ~~least squares error criterion~~ reinitializable low complexity fast least squares criterion, as distinguished from a least mean squares error criterion.

B1

2. (Currently Amended) The ~~apparatus~~ adaptive equalizer of Claim 1, further comprising a memory for storing received signal samples.

3. (Canceled)

4. (Currently Amended) The ~~method~~ adaptive equalizer of Claim 1, wherein the means for adapting operates during decision-directed mode.

5. (Canceled)

6. (Currently Amended) The ~~method~~ adaptive equalizer of Claim 1, wherein adaptation is performed using fixed-point arithmetic operations.

B1 Cont.

7. (Currently Amended) The ~~method~~ adaptive equalizer of Claim 1, wherein said means for adapting performs substantially the following computation:

$$e_p = e(1 - K^{T_{fast}} X_{fast}).$$

wherein e is the forward prediction error, K is the Kalmann Gain and X is an input vector.

8. (Currently Amended) The ~~method~~ adaptive equalizer of Claim 1, wherein said means for adapting performs substantially the following computations:

$$F_{fast} = \lambda_i F_{fast},$$

$$c_n = F_{fast} \frac{e_p}{1 + e^T F_{fast} e_p},$$

$$F_{fast} = F_{fast} - c_n e^T F_{fast},$$

$$b_n = K_{fast} + A_{fast} c_n.$$

B1 Cont.

wherein F, A and c are filter coefficients, e is the forward error prediction, λ is an error criterion, and b is a backward error predictor.

9. (Currently Amended) The ~~method~~ adaptive equalizer of Claim 1, wherein said means for adapting performs substantially the following computations:

$$K_{fast} = (m - (D_{fast}\mu))/(1 - \eta^T \mu),$$

$$D_{fast} = D_{fast} - K_{fast}\eta^T.$$

wherein K is the Kalmann Gain, D is the backward predictor coefficients and m, μ, and η are backward prediction errors.

Bl Cont.

10. (Currently Amended) The ~~method~~ adaptive equalizer of Claim 1, wherein a routine for updating said one of said forward filter and said feedback filter performs no more than 22N multiplies, where N is the number of filter taps~~, and wherein no distinct stabilization quantity is computed~~.

Claims 11-14 (Canceled).